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An Unusual Case of Atrophy of the Skin.

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THE more or less remote influence of the nervous system, as well as its direct effects upon processes occurring in the skin, have made this part of dermatology highly interesting. The anatomical investigations made in direct reference to this subject have tended to show a far-reaching influence on the part of the nerves; and while results entirely different from each other are seen, there can be no doubt as to this origin in at least a large number of cases. Not only have these conclusions been reached by means of anatomical and pathological investigations, but confirmatory proof has been added in the form of experiments, in which the conditions were artificially produced and were followed by the expected results, or rather by manifestations which had been foretold, and thus a demonstration of the truth of the original proposition was furnished. There is a large class of diseases of the skin in which we find quite a number of representatives of those forms due to some organic or functional change in the nerves. The class in which we find so many manifestations of the potent effects of nerve influence, is that which includes the atrophic forms of disease, in which either the entire skin is involved or merely certain anatomical portions of it. While it is true that these neurotic changes or disturbances are not always its primary or remote causes, investigation will show that they are directly interested in the production of certain atrophic processes. The case which I propose to outline is one in which the neurotic origin of the process observed admits of no doubt, no more than the presence of the atrophic condition. This very fact is one which renders it interesting, as also the probable remote cause

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which was also determined with certainty almost. The case, in brief, is as follows:

CASE:—Grace B——, when she presented herself at the clinic, was seven and a half years old. From the mother it was learned that five years previously she sustained a severe burn on the anterior aspect of the right wrist, towards the radial side and a little above the proximal extremity of the metacarpal bone of the thumb. The burn which was sustained was estimated to be of the size of a silver twenty-five cent piece. This was probably an exaggeration. Following this injury there was slight anæsthesia of the forearm. The mother further stated that the arms were of the same size, so far as she could determine, at the time of the accident.

When examined by me in March, 1889, I found that hyperæsthesia existed to a limited degree, both in the forearm and upper arm, and this was more marked in the region supplied by the brachial and radial nerves. That is, hyperæsthesia was found on the inner and anterior aspect of the upper arm and on the anterior and outer aspect of the forearm. At the site where the burn had occurred a small ovalish scar existed, having the dimensions of a silver dime.

The child appeared fairly well nourished, although inclined to be anæmic. She was rather small for her age. The teeth were good, and the skin normal, the hair growth being about the average. There were no indications of any syphilitic taint nor any marks to denote a strumous habit.

The right arm presented atrophic rectilinear areas about three-eighths of an inch in width, and varying in length from three-quarters to two inches, situated upon the anterior surface of the arm and forearm, and apparently following or lying directly over the brachial and the radial nerves. These areas were five in number, the larger ones being situated upon the forearm. They were distinctly depressed, although this was more apparent to the sight than to the touch. The color was paler than that of the normal skin, but the presence of heat caused them to assume a higher color than that of the normal integument. Fine blood-vessels could be traced in these areas. Upon taking up the atrophied skin, its thinness in comparison with that of the normal could be easily made out.

The right arm was also affected in another way

There existed a certain amount of atrophy in the muscles, not only of the upper arm and forearm but also of the thumb, the fingers being normal. This atrophy was sufficiently marked to be perceptible upon inspection. In order to determine the exact amount of atrophy which existed the following measurements were made, whereby a comparison might be established:

		Right.	Left.	Difference.
Circumference of wrist	- -	3 $\frac{3}{4}$ in.	4 $\frac{1}{4}$ in.	$\frac{1}{2}$ in.
" middle of forearm		4 $\frac{1}{2}$ "	5 $\frac{1}{4}$ "	$\frac{3}{4}$ "
" elbow - - -		5 "	6 "	1 "
" biceps - - -		4 $\frac{1}{2}$ "	5 $\frac{1}{2}$ "	1 "
" thumb - - -		1 $\frac{3}{8}$ "	2 "	$\frac{5}{8}$ "

When we compare the amount of loss with the measurements of the normal arm, it will be readily seen that the atrophy was one of a marked character. It was on account of this marked difference that relief was sought. While dynamometric measurements were not made, rough experiments readily demonstrated a perceptible loss of muscular power.

In an attempt to discuss the question of the etiology of this case, one point must not be lost sight of, viz., that there are two forms of linear atrophy, one being due to nervous influence of a direct or remote character, and the other, to mechanical causes. We may have the absorption of certain elements taking place through long-continued pressure, or we may have apparent atrophy through a stretching of the skin, as observed in the cases of obese persons and of pregnant women. In this last class we have as much to deal with a displacement as with an atrophic process, and in the case which I have reported, almost every cause but direct nervous influence can be easily eliminated.

A condition somewhat similar to the one reported is that known as "glossy skin," which is of distinctly neurotic origin, occurs upon the extremities, and is accompanied by a burning pain. Duhring* states that "similar changes occur in progressive muscular atrophy, due to disturbance of nutrition of the affected parts."

*L. A. Duhring. "Treatise on Diseases of the Skin." 1881.

Mitchell* has shown that nerve injuries will cause wasting of the muscles, atrophy of the skin and disappearance of the subcutaneous connective tissue. "Glossy skin" is said by Robinson† to follow wounds, besides the other causes mentioned by writers in general.

McCall Anderson‡ mentions a case of atrophy of the skin in which that portion supplied by the supraorbital nerve was affected. He also states that unilateral atrophy of the face is supposed to be due to permanent irritation of the cervical sympathetic. Brunner§ mentions a case of atrophy of the left side of the face in an epileptic woman. The atrophy involved not only the skin, but the muscles as well.

I have quoted these few examples to show the trend of opinion in respect to certain forms of atrophy, which resemble the one I have reported. A question which suggests itself in regard to my case is the following: Was the atrophy of the skin consecutive upon that of the muscles, or *vice versa*; or were both processes simultaneous? This, of course, cannot be answered, as the time which elapsed from the first period—that of the burn—to the period of examination, was too long. Moreover, the first observer was untrained and not capable of making any observations that would bear any weight. One fact noted by the mother, however, is reliable—that the atrophy of the skin and that of the muscles were progressive in character, the former increasing in extent and the latter becoming more marked; or, to express it more clearly, the atrophied portions of the skin increased in area and the arm became more shrunken.

Crocker|| has devoted some considerable attention to the various forms of atrophy of the skin, and in his classification of them he gives the following:

* Weir Mitchell. "Injuries of the Nerves and Their Consequences." 1872.

† A. E. Robinson. "A Manual of Dermatology." 1884.

‡ McCall Anderson. "Treatise on Diseases of the Skin." 1887.

§ In A. Eulenberg and P. Guttman. "Physiology and Pathology of the Sympathetic System of Nerves," 1879.

|| H. Radcliffe Crocker. "Diseases of the Skin." 1888.

Atrophoderma { Neuroticum { Traumaticum.
(glossy skin.) { Non-traumaticum.

This would include "glossy skin" as the type and, of course, variations would necessarily exist, perhaps totally distinct, as much so as is morphœa from scleroderma, which are held by many to be different phases of the same disease.

While it is true that there is a tendency nowadays to eschew traumatism as a factor in the causation of pathological processes, we cannot but accept it in many instances, if for no other reason than that a better explanation cannot be furnished. In the case reported it seems plausible to me to assume that the atrophy of the skin and of the muscles were simultaneous. Not only this, but that the remote cause was the burn which affected the radial nerve and, through it, the brachial, in such a manner as to produce functional disturbance, if not actual organic disintegration of a more or less limited character. It would be a very difficult matter, on the other hand, to determine whether the sympathetic nerves were not also implicated to a greater or less extent, especially in view of the history of the case and of the narrow anatomical ties which bind these members of the nervous system to the others.

That general neurotic trouble caused the local changes is out of the question, as it did not exist, and would, no doubt, have produced entirely different manifestations. It is to be regretted that more detailed work has not been done in investigating the dermatoses of neurotic origin. The neurologist gives the skin but a passing glance, while the dermatologist devotes but little attention to the nervous system, so that in the recorded cases which we find of atrophy of the skin the history is invariably meager in one respect, as are also the clinical description and pathological investigation.



